



Flight Opportunities

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Enjoy!

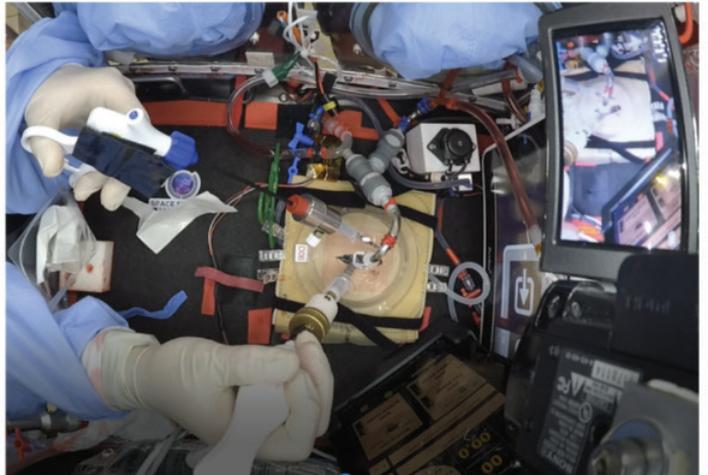
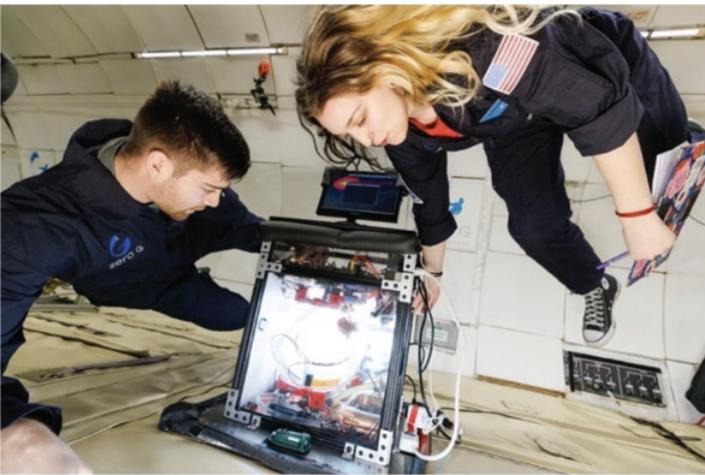
The Flight Opportunities team

May 2022 Parabolic Flight Put Multiple Payloads to the Test in Microgravity

Two parabolic flight campaigns, May 9-12 and May 16-17, 2022, in Fort Lauderdale, Florida, provided testing for innovations designed for space-based biotech, surgery, 3D printing, power systems, and propellant gauging. Funded by Flight Opportunities through a wide variety of NASA mechanisms (e.g., [TechFlights awards](#), SBIR, Tipping Point awards) the flights were provided by Zero Gravity Corporation and featured brief periods of microgravity aboard their G-FORCE ONE aircraft, enabling teams to test the performance of their payloads in one of the challenging environments of space. [Learn more about the flights and payloads tested.](#)

“This flight taught us that the transition of a lab-based prototype instrument to a flight instrument – and its automated operation in a flight environment – is very challenging. This successful experiment is an important step in advancing the flight technology readiness of our instrument.”

— Richard Mathies and Anna Butterworth, co-investigators for Lab-On-a-Chip, University of California, Berkeley



Clockwise from left: 1) Carthage College team members Dalton Callow (left) and Amanda Strebe observe the Modal Propellant Gauging experiment during a parabola. Credits: Carthage College; 2) In University of Louisville’s surgery experiment, a containment dome covers a bleeding wound model filled with analog blood while the surgeon suctions the blood with a multi-function surgical device. Credits: University of Louisville; 3) University of California, Berkeley students Ashley Reilly, Joseph Toombs, Pranit Mohnot, Tristan Schwab, and Tayler Waddell observe their Computed Axial Lithography experiment while floating in microgravity. Credits: Steve Boxall/Zero Gravity Corporation; 4) Jed Storey of NASA’s Kennedy Space Center monitors data for the center’s Propellant Mass Gauging experiment during a period of zero gravity. Credits: NASA

Join Us For the July Webinar

Testing Payload Return Capabilities on High-Altitude Balloons

Speakers: Tyler Kunsu, SpaceWorks Enterprises; Kevin Tucker, Near Space Corporation

Wednesday, July 6, 2022

10:00 a.m. - 11:00 a.m. PDT

[Learn more and join the webinar online.](#)

Image: The Re-entry Device (RED) payload return capsule from SpaceWorks Enterprises is guided to the ground via parafoil after being released from a Near Space Corporation high-altitude balloon. Credit: SpaceWorks Enterprises



News

News Briefs

Recent NASA coverage highlighting the work of Flight Opportunities-supported researchers:

[How Do You Harvest Microgreens in Microgravity?](#) (featuring the [Microgreens Root Zone/Shoot Zone Partitioned Planting Box](#) from NASA's Kennedy Space Center tested on Zero Gravity Corporation's G-FORCE ONE)

[Scientists Grow Plants in Lunar Soil](#) (featuring research from the University of Florida related to [Biological Imaging in Support of Suborbital Science](#) tested on multiple vehicles)

[NASA Helps Develop CubeSat Infrastructure for All](#) (featuring the [Micro-Avionics Multi-Purpose Platform](#) from Tyvak Nano-Satellite Systems tested on an UP Aerospace rocket)

Opportunities

Now Open: NASA Innovative Advanced Concepts Phase I

[The NASA Innovative Advanced Concepts \(NIAC\) Program](#) focuses on early-stage feasibility studies of visionary concepts that address national government and commercial aerospace goals. Concepts are solicited from any field of study that offers a radically different approach or disruptive innovation that may significantly enhance or enable new human or robotic science and exploration missions. Phase I awards are for efforts up to nine months funded at up to \$175,000 per award to explore the overall feasibility and viability of visionary concepts.

[View the solicitation.](#)

Proposals due: July 1, 2022

Now Open: NASA Innovation Corps™ Pilot

In partnership with the National Science Foundation, NASA's Science and Space Technology Mission Directorates are offering a new pathway to train faculty, students in higher education, post-docs, and other researchers to participate in **Innovation Corps (I-Corps)™**. The Pilot aims to accelerate the transition of promising ideas from the lab to the marketplace, while encouraging collaboration between academia and industry.

Read the full solicitation on [NSPIRES](#).

Cut-off dates for quarterly reviews begin July 22.

Coming Soon: NASA TechRise 2022-23

The next NASA TechRise Student Challenge is expected to launch in late August 2022! Keep an eye on your inbox for more information, and feel free to [share the TechRise Student Challenge](#) with your networks to help spread the word to students and educators.



[Visit the Challenge website](#) for resources.

[Register for Challenge updates.](#)

Coming Soon: NASA SBIR Ignite

SBIR Ignite is a new way for small businesses with a commercially viable technology idea to use NASA as a stepping stone in their path toward commercial success. Expected to be released this summer, the SBIR Ignite solicitation funds early-stage, high-risk U.S. technology development to help make companies and their technologies more attractive to private sector investors, customers, and partners.

[Learn more about NASA SBIR Ignite.](#)

[Sign up for announcements.](#)

Introducing: NSF's Regional Innovation Engines Program

The National Science Foundation (NSF) is launching the Regional Innovation Engines (NSF Engines) program for innovation ecosystems across the U.S. to advance critical technologies, address societal challenges, nurture diverse talent, and promote economic growth and job creation. Each NSF Engine recipient could receive up to \$160 million over 10 years.

[Learn more about the submission process.](#)

Flight Opportunities-Supported Teams Publish Flight Results

Flight Opportunities celebrates the innovations matured through suborbital testing that have been infused into orbital missions or transitioned to industry. Another important milestone for many teams supported by the program is the publication of flight results and key research findings in peer-reviewed journals and other industry publications. This month, we are recognizing some recently published papers and results from our community. Congratulations to these hard-working innovators!

- Chung, J.N., Dong, J., Wang, H. et al. **Cryogenic spray quenching of simulated propellant tank wall using coating and flow pulsing in microgravity.** *Nature Microgravity* 8, 7 (2022).
- Cordonier, G.J., Sharafati, C., Mays, S. et al. **Direct foam writing in microgravity.** *Nature Microgravity* 7, 55 (2021).
- Chung, J.N., Dong, J., Wang, H. et al. **An advance in transfer line chilldown heat transfer of cryogenic propellants in microgravity using microfilm coating for enabling deep space exploration.** *Nature Microgravity* 7, 21 (2021).

Has your Flight Opportunities-supported research been published? Let us know and we may include your paper in a future issue of the newsletter.

Team Spotlight

Flight Opportunities Wins NASA Group Achievement Award

Flight Opportunities Program Manager John Kelly accepted a Group Achievement Award on behalf of the full team at the NASA Armstrong Flight Research Center Honor Awards ceremony on June 9, 2022. The program received the award *“for exceptional performance in successfully increasing the pace of development and testing of space technologies critical to NASA’s missions and commercial applications.”*

Congratulations, team!

2021 NASA Honor Awards Flight Opportunities Program

Group Achievement Award for exceptional performance in successfully increasing the pace of development and testing of space technologies critical to NASA’s missions and commercial applications.



American Library Association's Annual Conference & Exhibition

June 23-28, 2022

Washington, D.C.

NASA's exhibit at this educational event will feature plenty of resources for education and STEM professionals, and Flight Opportunities is excited to share information about the [NASA TechRise Student Challenge](#) expected to open later this summer.

NSMMS & CRASTE Joint Symposia

June 27-30, 2022

Madison, Wisconsin

Join Flight Opportunities Program Manager John Kelly for his presentation "Expanding Suborbital Testing: NASA Flight Opportunities and Commercial Partners Advance New Capabilities" on June 29.

National Conference on Science Education

July 21-23, 2022

Chicago, Illinois

This event from the National Science Teaching Association brings together leaders in STEM education. Flight Opportunities program leaders will be in attendance.

ISS R&D Conference

July 25-28, 2022

Washington, D.C.

Flight Opportunities Deputy Program Manager Danielle McCulloch will present "Using Suborbital Flight Tests to Prepare for Orbital Demonstrations." The session will provide information about how program-supported researchers have tested their technologies in suborbital flight ahead of International Space Station and other orbital missions. Session schedules will be announced via the conference website in the coming weeks.

Small Satellite Conference

August 6-11, 2022

Logan, Utah

This year's event will focus on key advancements in small satellite missions that may enable scientific discovery beyond low-Earth orbit. Representatives from Flight Opportunities and NASA's Small Spacecraft Program will be on hand.

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Have ideas or feedback for the Flight Opportunities newsletter?

Drop us a line at:

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STAY CONNECTED:



NASA Flight Opportunities Program

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Flight Opportunities is part of NASA's Space Technology Mission Directorate.